Homework 2 Binary arithmetic and hexadecimal
Unit 2 Data representation

PG ONLINE

Name: ..... **Class:** ..... **Mark:** .....

---

1. Convert the following binary values into denary: [2]

   (a) 00011011

   (b) 11100110

2. Circle the binary value below that represents the denary value 87? [1]

   (a) 01011010
   (b) 11000100

   (c) 01010111
   (d) 00011010

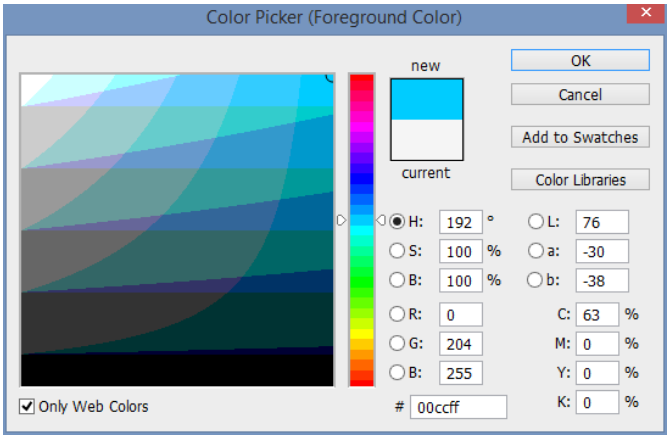
3. Convert the following values to and from Hexadecimal: (Show your working). [8]

(a) Denary	37	to	Hex
(b) Denary	59	to	Hex
(c) Hex	11	to	Denary
(d) Hex	2F	to	Denary
(e) Hex	1A	to	Binary
(f) Hex	16	to	Binary
(g) Binary	0011 0111	to	Hex
(h) Binary	1101 1111	to	Hex

4. Multiply the binary value 0011 0010 by 2, by using a logical shift. [1]

---

5. Colours in art packages are often given using hexadecimal as illustrated below with **#00ccff**.



Explain why hexadecimal is used rather than the actual 24-bit colour value. [2]

---

6. Add 00100111 to 00101010. You should include your working. [2]

	0	0	1	0	0	1	1	1
+	0	0	1	0	1	0	1	0

7. Add 00100111 to 00111010. You should include your working. [2]

	0	0	1	0	0	1	1	1
+	0	0	1	1	1	0	1	0

8. An error occurs when you try to add 11011001 to 11100100 and store it as an 8-bit number. Explain the error that occurs. [2]

[Total 20 marks]